

What is claimed is:

Sub A1  
1. A data processing apparatus for processing  
3-dimensional form data of an object, said data processing  
apparatus comprising a modifying unit which modifies at least  
5 a part of the 3-dimensional form data based on 2-dimensional  
image data of the object.

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2. The data processing apparatus of claim 1; further  
comprising:

a first generating unit which generates the  
10 2-dimensional image data; and

a second generating unit which generates the  
3-dimensional form data of the object.

3. The data processing apparatus of claim 1, wherein  
said modifying unit extracts an area from the 2-dimensional  
15 image data based on a predetermined condition, and modifies  
the part of the 3-dimensional form data corresponding to the  
area.

4. The data processing apparatus of claim 3, wherein the  
object is a head of a human.

20 5. The data processing apparatus of claim 4, wherein the  
area corresponds to at least one of hair, a forehead,  
eyebrows, eyes, irises of eyes, and lips of the human.

6. The data processing apparatus of claim 1, wherein  
said modifying unit extracts a first area from the  
25 2-dimensional image data based on a first predetermined  
condition and a second area from the 3-dimensional form data  
based on a second predetermined condition, and wherein said  
modifying unit modifies parts of the 3-dimensional form data  
corresponding to the first and second areas.

Sub A2  
30 7. The data processing apparatus of claim 6, wherein the

object is a head of a human.

8. The data processing apparatus of claim 7, wherein the first area corresponds to at least one of eyebrows, eyes, irises of eyes, and lips of the human, and the second area  
5 corresponds to at least one of a nose and a neck of the human.

9. The data processing apparatus of claim 6, wherein upon extracting the first area, area division is carried out for a shade portion of the object by referring to the 2-dimensional image data of a surrounding portion.

10. The data processing apparatus of claim 1, wherein the object is a head of a human, and the part corresponds to at least one of hair, a forehead, eyes, irises of eyes, a nose, cheeks, lips, and a neck of the human.

11. The data processing apparatus of claim 10, wherein  
15 said modifying unit modifies the 3-dimensional form data to emphasize a partial form of the object corresponding to the part.

12. The data processing apparatus of claim 10, wherein said modifying unit modifies the 3-dimensional form data to  
20 smooth a partial form of the object corresponding to the part.

13. The data processing apparatus of claim 1, wherein said modifying unit modifies the 3-dimensional form data in the case where the data processing apparatus is set in a specific mode.

25 14. A method for processing 3-dimensional form data of an object, said method comprising the steps of:

(a) inputting 2-dimensional image data of the object and the 3-dimensional form data; and

(b) modifying at least a part of the 3-dimensional form  
30 data based on the 2-dimensional image data of the object.

15. The method of claim 14, the steps (b) comprising the steps of:

(b-1) extracting an area from the 2-dimensional image data based on a predetermined condition; and

5 (b-2) modifying the part of the 3-dimensional form data corresponding to the area.

16. The method of claim 15, wherein the area corresponds to at least one of hair, a forehead, eyebrows, eyes, irises of eyes, and lips of a human as the object.

10 17. The method of claim 14, wherein the step (b) comprising the steps of:

(b-1) extracting a first area from the 2-dimensional image data based on a first predetermined condition;

15 (b-2) extracting a second area from the 3-dimensional form data based on a second predetermined condition; and

(b-3) modifying parts of the 3-dimensional form data corresponding to the first and second areas.

18. The method of claim 17, wherein the first area corresponds to at least one of eyebrows, eyes, irises of eyes, and lips of a human as the object, and the second area corresponds to at least one of a nose and a neck of the human.

19. The method of claim 14, wherein a partial form of the object corresponding to the part is emphasized in the step (b).

20. The method of claim 14, wherein a partial form of the object corresponding to the part is smoothed in the step (b).

21. A data processing apparatus for processing 3-dimensional form data of a human head, said data processing apparatus comprising a modifying unit which modifies a part of the 3-dimensional form data into data representing hair,

the part satisfying a predetermined condition.

22. The data processing apparatus of claim 21, wherein said modifying unit extracts an area of 2-dimensional image data of the human head satisfying the predetermined condition, and modifies the part of the 3-dimensional form data corresponding to the area.

23. The data processing apparatus of claim 22, further comprising:

a first generating unit which generates the 2-dimensional image data of the human head; and a second generating unit which generates the 3-dimensional form data.

24. A method for processing 3-dimensional form data of a human head, said method comprising the steps of:

(a) inputting the 3-dimensional form data; and (b) modifying a part of the 3-dimensional form data into data representing hair, the part satisfying a predetermined condition.

25. The method of claim 24, said step (b) comprising the steps of:

(b-1) extracting an area of 2-dimensional image data of the human head satisfying the predetermined condition; and

(b-2) modifying the part of the 3-dimensional form data corresponding to the area.

26. A data processing apparatus for processing 3-dimensional form data of an object, said data processing apparatus comprising:

a controller which executes the steps of:

(a) dividing 2-dimensional image data corresponding to the 3-dimensional form data into a plurality of sections; and

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(b) designating an area based on each of spatial frequency distributions of the sections.

27. The data processing apparatus of claim 26, wherein said controller further executes the step of:

5 (c) generating the 2-dimensional image data based on the 3-dimensional data, wherein the step (b) is executed before the step (a).

28. The data processing apparatus of claim 26, wherein said controller further executes the step of:

10 (c) modifying a part of the 3-dimensional form data corresponding to the area.

29. A method for processing 3-dimensional form data of an object, said method comprising the steps of:

15 (a) dividing 2-dimensional image data corresponding to the 3-dimensional form data into a plurality of sections; and

(b) designating an area based on each of spatial frequency distributions of the sections.

30. The method of claim 29, further comprising the step of:

20 (c) generating the 2-dimensional image data based on the 3-dimensional data, wherein the step (b) is executed before the step (a).

31. The method of claim 29, further comprising the step of:

25 (c) modifying a part of the 3-dimensional form data corresponding to the area.

32. A data processing apparatus for processing 3-dimensional form data of an object, said data processing apparatus comprising:

30 a processing unit which generates 3-dimensional form

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data based on 2-dimensional image data of the object, and combines the 3-dimensional form data and the 2-dimensional image data.

33. The data processing apparatus of claim 32, further comprising:

a first generating unit which generates the 2-dimensional image data; and

a second generating unit which generates the 3-dimensional form data.

10 34. A method for processing 3-dimensional form data of an object, said method comprising the steps of:

(a) generating 3-dimensional form data of the object based on 2-dimensional image data of the object; and

15 (b) combining the 3-dimensional form data and the 2-dimensional image data.

35. The method of claim 34, further comprising the steps of:

(c) inputting the 3-dimensional form data; and

(d) inputting the 2-dimensional image data,

20 wherein the step (d) is executed before the step (a), and the step (d) is executed before the step (b).

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